

WHAT IS CLAIMED IS:

1. A radio communication system comprising:
an array antenna; and
a weighting means that provides a downlink array weight for a downlink on the basis of information about bearings of a plurality of incoming signals received through a plurality of uplinks, and transmission power control information about transmission data to be transmitted through a downlink.

2. A transmission control method for a base station which communicates with a plurality of mobile stations via an array antenna using a code-division multiple access system (CDMA system), comprising the steps of:

receiving, using said array antenna, a plurality of uplink signals transmitted from said plurality of mobile stations;

providing a downlink array weight for transmitting downlink signals to one of said plurality of mobile stations such that said downlink array weight represents an antenna pattern having a maximum beam in a direction of a first uplink signal transmitted from said one of the plurality of mobile stations received using said array antenna, and having a null in a direction of a second uplink signal transmitted from a mobile station other than said one of the plurality of mobile stations received using said array antenna.

3. The transmission control method according to claim 2, wherein said downlink array weight is provided according to transmission power control information for a plurality of downlinks to said plurality of mobile stations.

4. The transmission control method according to claim 3, wherein said transmission power control information is determined according to a transmission rate for a corresponding downlink.

5. The transmission control method according to claim 2, wherein the direction for the maximum beam is determined according to spatial information extracted from a plurality of symbols of the first uplink signal, and the direction for the null is determined according to spatial information extracted from a plurality of symbols of the second uplink signal.